i. EXECUTIVE SUMMARY

INTRODUCTION

Geographic Variations in Practitioner Expenditures and Utilization was developed to explore issues of demand for and access to health care among Maryland's residents, and to gain a better understanding of residents' travel patterns to obtain care. Because other studies have shown rural residents to have a higher incidence of chronic disease compared to urban residents, it is important to know whether and how health care utilization differs among Maryland's rural and urban residents. This report compares differences in the volume and type of health care practitioner utilization and expenditures by urban and rural residents of Maryland. Knowledge of travel patterns for health care services is fundamental to the identification of geographic market areas for health care services. Market areas for health care services likely differ depending on whether the services are for primary care or for tertiary care (i.e., hospital inpatient treatment). This report measures urban and rural residents' use of practitioner services outside their jurisdiction of residence, expanding on the geographic analysis contained in the Commission's March 1999 report, ***Practitioner Expenditures and Utilization: Experience from 1997***, which compared in and out of state use of practitioner services by type of insurer. The current report also examines the extent of border crossing in and out of Maryland for hospital inpatient services. Data limitations require the inpatient analysis to focus on the Medicare population, but a subset of the Medicare population that best reflects travel patterns for inpatient services in the privately insured is also examined.

The 1997 Maryland Medical Care Data Base (MCDB) is the primary source for most of the information presented in this report. Data for practitioner services provided in 1997 were obtained from payers in accordance with COMAR 10.25.06. The quality and completeness of data submissions varied greatly among the payers, forcing the Commission to limit the number of payers used in the analyses. Analyses presented in this report are based on submissions from 44 of the largest payers, who constitute about 91 percent of the state's premium volume. The Medicare Provider Analysis and Review (MEDPAR) file for 1997, which contains information for 100 percent of Medicare beneficiaries using hospital inpatient services, was used to examine inpatient services.

Chapter 2 examines health care practitioner utilization and expenditures by urban and rural residents. It discusses variations in the cost and mix of services for residents insured by private and government payers and compares how use of practitioner specialties differs for urban and rural residents. Chapter 3 addresses residents' use of services outside their home county or outside of Maryland. It compares urban and rural residents' use of practitioner services in and out of their county of residence. The chapter also presents the proportion of residents' inpatient hospital discharges and reimbursements that occur outside of Maryland. Both in this summary and in the report itself, any conclusions that might be drawn from the data analysis accompany the analytical results rather than being deferred to a separate conclusion section.

URBAN-RURAL VARIATIONS IN PRACTITIONER SERVICES UTILIZATION AND EXPENDITURES

Urban-Rural Differences in Patient Coverage, Service Use and Expenditures

Medicare and Medicaid cover larger shares of the practitioner payments for rural residents than they do for urban residents, mainly due to the higher proportions of rural patients in these public programs (see table below). Medicare and Medicaid cover 39 and 9 percent, respectively, of total rural practitioner payments, compared with 34 and 6 percent, respectively, of urban payments. Private insurers cover the majority of either urban or rural practitioner payments, but their share is higher among urban patients: 61 percent versus 52 percent.

DISTRIBUTION OF PAYMENTS AND PATIENTS IN THE MCDB BY URBAN-RURAL STATUS AND TYPE OR PAYER

	Private Non-HMO Insurers	Private HMO FFS	Medicare	Medicaid	All Payers
Payer Proportions Of Payments In MCDB					
Urban Residents	41.2%	19.5%	33.7%	5.6%	100%
Rural Residents	34.1	18.3	38.6	9.0	100
Payer Proportions of Patients in MCDB					
Urban Residents	47.6%	26.9%	17.8%	7.7%	100%
Rural Residents	40.2	23.3	24.9	11.6	100

Statewide, Medicare patients averaged 31.3 services per recipient during 1997, twice the utilization rate for Medicaid patients at 15.7 services and nearly 2.6 times the annual utilization rate among private, non-HMO patients at 12.1 services. The utilization rate for private HMO fee-for-service (FFS) patients was 7.3 services per patient. However, capitated services are not included in the service and payment tabulations, therefore, their total utilization and payments are higher than presented here. ***Among the insured, rural residents average fewer practitioner services per person than do urban residents.*** The largest difference occurs in Medicare enrollees, with a rural patient using about 27 percent fewer practitioner services than an urban patient uses: 23.5 versus 32.1 services. The other patient populations were also marked by lower service use by rural compared to urban residents. There were 14 percent fewer services per patient among rural private, non-HMO patients (10.6 versus 12.3) and 7 percent fewer services by rural Medicaid patients (14.7 versus 15.8).

Medicaid and Medicare patients in rural counties appear to use somewhat more expensive services than do their urban counterparts. The use of more expensive services may capture differences in practitioner practice style, it may be a consequence of overall lower service utilization, or demographic characteristics of the patient populations could play a role. The pattern of utilization HCACC identified suggests rural patients may be somewhat sicker when they do obtain care with the result being that they need a more complex higher-priced mix of practitioner services to treat their illnesses.

Annual payment per patient for all payers was higher for urban enrollees compared to rural counterparts, but the size and cause of the urban-rural differential varied by payer. The largest difference, 37 percent, was seen in the case of Medicare beneficiaries and was due to greater service utilization. Urban Medicare patients' average annual payments were $1,732 compared to $1,267 for rural Medicare patients. Annual payment per patient was 17 percent higher in urban private non-HMO recipients, reflecting both more services and a higher payment per service compared for urban patients.

The annual payment for urban patients was $804 compared to $690 for their rural counterparts. The urban-rural differentials for both HMO and Medicaid patients were under 5 percent. The urban-rural annual payments for these insured groups were $665/$635 for Medicaid patients and $662/$643 for HMO FFS patients.

Conventional wisdom holds that Maryland's rural residents – like rural residents elsewhere – suffer from more chronic conditions than their urban counterparts. This analysis found that practitioner expenditures per patient and the level of service utilization are lower for Maryland's insured rural patients. These results do not provide evidence for more chronic illness in the state's insured rural population, which would be expected to result in higher levels of health care utilization and expenditures.

Urban-Rural Differences in Service Mix

Specific urban-rural differences in the distribution of practitioner service payments are similar for the public payers. Among Medicare and Medicaid patients, both evaluation and management services (E&M) and procedures account for higher proportions of practitioner payments in rural areas relative to urban areas. Conversely, the payment percentages for imaging and tests are lower for publicly insured rural residents than for their urban counterparts. These urban-rural differences in payment proportions are mainly driven by differences in service mix.

Higher payment concentrations in E&M and procedures for rural publicly insured patients do not, however, translate into higher per patient payments for these services in rural patients. Average per patient payments for E&M and procedures are the same in urban and rural Medicaid patients. Payments for these services in rural Medicare patients are 24 and 21 percent lower than per patient payments for urban patients.

The lower proportions of payments allocated to imaging, tests, and unclassified services in rural Medicaid patients account for the entire urban-rural gap in average total payment per Medicaid patient. Per patient payments for imaging, tests, and other services in rural Medicare patients are 34-49 percent lower than the payments for these services in their urban counterparts – proportionately larger then the rural reductions in payments for E&M and procedures. Patients in rural areas would be expected to have less access to specialty care physicians, certain non-physician health care professionals, and more sophisticated diagnostic procedures than do urban residents.

Among private payers, HMO FFS claims for residents in rural counties have a lower proportion of payments allocated to E&M services and a higher percentage of payments attributed to imaging. The unknown mix of services in the FFS claims makes it is difficult to interpret the underlying reasons for this urban-rural difference. However, it might simply reflect a greater use of FFS reimbursement for imaging in rural areas compared to urban areas where capitation is more common.

Urban-Rural Differences in Specialty Payments and Utilization

Medicare Primary care physicians provide a larger share of practitioner services for rural residents relative to urban residents, but they do not receive a higher proportion of Medicare payments in rural areas. Primary care physicians provide an average of 8.5 services per urban Medicare patient and 6.8 services per rural patient. On average, primary care physicians are reimbursed $364 per urban Medicare patient compared to $265 per rural Medicare patient. Specialists account for very similar

proportions of Medicare services and payments in urban and rural areas. However, on average, they are reimbursed $1,238 per urban Medicare patient compared to $924 per rural Medicare patient. Specialists provide an average of 20.9 services per patient for urban enrollees and an average of 15.1 services for rural patients. Non-physician health care professional services and payments for rural residents balance the higher proportions of primary care physician services and payments for this population. On average, non-physician practitioners are reimbursed about $118 per urban patient and $75 per rural patient. In urban areas, non-physician practitioners provide an average of 2.4 services per patient; in rural areas, they provide an average of 1.46 services per patient.

Private Non-HMO The percentages of services and payments associated with primary care physicians are essentially the same in rural and urban areas for this population. However, because the proportion of services provided by physicians without an identified specialty is higher in rural areas, the rural proportions reported for primary care physicians may be underestimated. Primary care physicians account for, on average, 3.7 services and $171 of payments per non-HMO patient in urban areas compared to 3.2 services and $150 per patient in rural areas. With regard to specialty care physicians, the percentages of services and payments are higher in the urban population. For this group of patients, specialists are reimbursed $435 per urban patient compared to $357 per rural patient. They provide an average of 4.9 services per urban patient and 3.9 services per rural patient.

HMO FFS Primary care physicians account for smaller proportions of practitioner services and payments for the rural population compared to their urban counterparts. Primary care physicians are reimbursed, on average, $79 per urban patient compared to $67 per rural patient, providing an average of 1.9 services per urban patient and 1.8 services per rural patient. Specialty care physicians account for higher proportions of practitioner services and payments for HMO FFS rural residents than for their urban counterparts. Specialists are reimbursed $384 per urban patient compared to $417 per rural patient, with each urban patient receiving an average of 3.5 services compared to 4.5 services for a rural patient. The greater use of specialists among the HMO-FFS rural population is surprising given that specialty care physicians are often in shorter supply in rural areas. Here it may reflect a greater use of FFS as the reimbursement mechanism for specialty care physicians compared to reimbursement for specialists in urban areas, which may make greater use of capitation.

Medicaid Similar to Medicare, primary care physicians account for larger proportions of practitioner services and payments for rural enrollees. However, the increased importance of primary care physicians in rural areas is even greater than that seen for Medicare beneficiaries. Primary care physicians provide 5.2 services per urban patient compared to 5.4 services per rural patient. In sum, primary care physicians receive an average of $138 per urban patient and an average of $142 per rural patient. Rural Medicaid patients receive a higher proportion of their services from physician specialists than do their urban counterparts and this pattern is also reflected in the distribution of payments. Each urban Medicaid patient receives an average of 2.6 services from specialists compared to an average of 2.9 services per rural patient. Specialists are reimbursed an average of $115 per urban patient and $123 per rural patient. The percentages of rural services and payments allocated to other providers (i.e., independent laboratories and freestanding medical facilities) are dramatically smaller in rural as opposed to urban areas. For urban patients, these providers account for 4.5 services per patient and receive an average reimbursement of $203 per patient, while in rural areas; these providers account for 2.4 services per patient and receive an average reimbursement of $135 per patient.

BORDER CROSSING FOR HEALTH CARE SERVICES

Border Crossing for Practitioner Services

County border crossing differs for residents of urban and rural areas. Rural residents receive more of their practitioner services out-of-county. On average, 54 percent of practitioner services received by urban residents are in-county compared to only 45 percent for rural residents. About 45 percent of services received by rural residents are performed out-of-county, compared to only one-third of services received by urban residents. ***Urban residents are more likely to travel out-of-state.*** Thirteen percent of services received by urban residents are performed out-of-state versus 10 percent for rural residents. However, there is considerable variation among both urban and rural counties in out-of-state utilization rates. The highest rates occur for residents of the border counties of Cecil, Garrett (rural), Prince George's, and Montgomery who receive more than one-fifth of their practitioner services out-of-state.

In comparison to the urban population, rural residents: pay less for in-county services, about the same for out-of-county services, and more for out-of-state services. The mean payment for in-county, out-of-county, and out-of-state services does not vary as much as might be expected. In-county services for rural residents average a $54 payment; urban residents' in-county services average a $58 payment. Out-of-county mean service payments are similar – $61 for urban residents, $62 for rural residents – and rural residents actually pay more than urban residents when they go out-of-state for their services: $77 vs. $72, a possible explanation for the lower proportion of out-of-state services received by rural residents. For all but four jurisdictions, the out-of-state mean payment exceeds both of the in-state average payments.

Some counties show variation from the average for their regional designation because of residential commuting patterns. Research has shown that people generally seek health care services in close proximity to either their home or their place of work. Within the rural designation, Caroline, Worcester and Somerset counties show the lowest proportions of services performed within county. Only 10 percent of services received by Caroline County residents were performed in-county, while Worcester and Somerset county residents received 22 and 24 percent, respectively, of their services in-county. Corresponding to their low in-county service rates these counties also have among the lowest physician-to-population ratios in the state. Among urban counties, Allegany and Washington counties retain the largest shares of services for residents within the county: 86 percent and 78 percent, respectively. These high in-county service rates do not strictly correspond with physician-to-population ratios. But Washington County is a primary metropolitan statistical area (PMSA) and Allegany contains the central city for an MSA it forms with part of West Virginia. These high percentages likely reflect the high probability of residents working within their MSA, i.e., within the county in which they reside.

State Border Crossing for Hospital Inpatient Services

Maryland Medicare beneficiaries used a total of $1.6 billion of inpatient care in 1997. ***Border crossing outside of Maryland for inpatient services accounted for more than 10 percent of the discharges and 14.5 percent of inpatient payments for Maryland Medicare beneficiaries***, amounting to $236 million. These out-of-state hospital percentages are smaller than the out-of-state percentages HCACC identified for practitioner services received by Maryland Medicare beneficiaries: 18 percent of services and payments. Hospitals located in D.C. account for the majority of out-of-state discharges and nearly two-thirds of the out-of-state reimbursements for Maryland Medicare beneficiaries. About

one-fifth of the reimbursements for out-of-state discharges goes to hospitals in states that border Maryland and the remaining 15 percent is received by hospitals in more distant jurisdictions.

Complexity of illness appears to be an important factor in inducing Medicare beneficiaries to obtain inpatient care in neighboring jurisdictions, especially in Washington D.C. Studies have demonstrated that patients who travel long distances incur higher hospital costs and use more resources than patients who receive health care locally. Accordingly, the mean reimbursement per discharge for the state's Medicare beneficiaries is 55 percent higher in the jurisdictions that border Maryland. The highest mean, $13,000, occurs for discharges from D.C. hospitals and is 71 percent above the mean reimbursement for Maryland Medicare patients in Maryland hospitals, $8,000. The relative increase in mean reimbursement for inpatient stays occurring in other locations outside of Maryland is smaller: 20 percent higher in the states that border Maryland and 13 percent higher in more distant jurisdictions such as North Carolina and Florida. The smaller reimbursement increase for discharges from hospitals in non-adjacent jurisdictions indicates that these inpatient stays are more similar to inpatient care received locally with regard to complexity of care and duration of stay.

Nearly 13 percent of Medicare-covered discharges from Maryland hospitals are associated with patients who reside outside Maryland with the related reimbursements accounting for about 10 percent of Medicare inpatient payments to Maryland hospitals. About 46 percent of these non-resident patients live in the four bordering states and D.C. but the majority is from more distant jurisdictions. The mean reimbursements per discharge from a Maryland hospital for patients living in D.C. and states that border Maryland are 21 and 8 percent higher, respectively, than the average for Maryland residents but well below the mean reimbursements for Maryland residents who obtain inpatient care in these bordering jurisdictions. This seems to indicate that ***complexity of illness may be a more important factor in inducing Maryland beneficiaries to obtain inpatient care in neighboring jurisdictions than in explaining why residents of bordering jurisdictions cross into Maryland for inpatient care.*** Complexity of illness does not appear to be the reason that residents of more distant jurisdictions seek inpatient treatment in Maryland hospitals. The average reimbursement for these patients is less than half the average for state residents but the means for duration of stay are very similar indicating significantly less resource utilization by residents of non-adjacent jurisdictions. This may be unanticipated emergency care or consultative services.

The analysis of a subset of Medicare patients, substituting for the privately insured, indicates this group has a somewhat greater tendency to obtain inpatient care outside of Maryland relative to Medicare beneficiaries. Medicare beneficiaries aged 65-69 without end-stage renal disease were used as a proxy for the inpatient utilization behavior of the privately insured. Using the discharge pattern for this population, we project that nearly 12 percent of privately insured Maryland residents' inpatient discharges and 17 percent of their inpatient payments occur outside the state. Compared to Medicare beneficiaries generally, the out-of-state inpatient stays for the younger subset are more likely to occur in D.C. hospitals and less likely in hospitals located in non-adjacent jurisdictions. Mean reimbursements for younger beneficiary discharges in D.C. and bordering states are 85 and 33 percent higher, respectively, than the average for these residents' in-state hospital stays, compared to the 71 and 20 percent differences, respectively, for all Maryland beneficiaries. These higher reimbursement differentials seem to indicate that ***in a younger population, leaving Maryland for inpatient care in bordering jurisdictions is even more likely to be driven by severity of illness*** (as reflected in proportionately higher inpatient expenses) than in the Medicare population. In examining use of Maryland hospitals, a higher proportion of the younger patients reside in the states bordering Maryland than was found in the Medicare population. As in the Medicare population, the average reimbursement to Maryland hospitals for residents of non-adjacent jurisdictions is less than half the

average for Maryland residents although the duration of stays are similar, reflecting lower resource utilization by these non-residents.

Total inpatient costs for Maryland's Medicare beneficiaries exceed the total Medicare inpatient payments (for residents and non-residents) to Maryland's hospitals by nearly 6 percent. Since Medicare beneficiaries in Maryland require 5.8 percent more inpatient dollars than the state's hospitals produce in treating Medicare patients, this makes the state an importer of inpatient services. Total inpatient reimbursement for the state's privately insured residents is projected to be 8.5 percent greater than the total private insurance reimbursement received by Maryland hospitals. For both the Medicare and privately insured populations, it is the intensity of resource use, rather than the number of admissions, that makes the state a net importer of inpatient service dollars. We have presented mean reimbursements as synonymous with resource intensity, but the differences in payment also reflect cost differences among the jurisdictions. These cost differences include differentials in input prices for labor and differences in underlying hospital costs such as teaching programs and hospital construction and renovation costs reimbursed by Medicare.